



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/796,842      | 03/09/2004  | Bi Le-Khac           | 01-2630A            | 2443             |

24114 7590 03/01/2005

LYONDELL CHEMICAL COMPANY  
3801 WEST CHESTER PIKE  
NEWTOWN SQUARE, PA 19073

EXAMINER

JOHNSON, CHRISTINA ANN

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1725

DATE MAILED: 03/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/796,842

Applicant(s)

LE-KHAC ET AL.

Examiner

Christina Johnson

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 7-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-6 in the reply filed on February 7, 2005 is acknowledged. The traversal is on the ground(s) that all of the claims require a "polymer-encapsulated titanium zeolite" and therefore the inventions cannot be independent and distinct. This is not found persuasive because restriction is proper if the inventions can be shown to be independent or distinct. Refer to MPEP 803. Applicant has not provided arguments traversing the distinctness set forth by the examiner in the previous office action. Because the search required for Group I is not required by the remaining groups, search and examination of the entire application cannot be conducted without serious burden.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 7-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on February 7, 2005. Applicant's request for rejoinder upon the indication of allowable subject matter is noted by the examiner.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1725

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhou et al.

Zhou et al. (US 6,534,661) discloses an epoxidation catalyst comprising a titanium zeolite such as TS-1 (column 8, lines 40-50). The reference teaches that a solution comprising an ionic polymer is prepared and the titanium zeolite is mixed with the polymer solution and recovered (refer to column 8, line 65 – column 9, line 5). It is the position of the examiner that the preparation method taught by the reference would result in a polymer encapsulated titanium zeolite as defined in the instant specification. Suitable polymers include polyacrylates (column 8, lines 20-40).

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Zhou et al.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou et al. as applied to claims 1-3 and 5 above, and further in view of Grey et al.

Art Unit: 1725

The teachings of Zhou et al. are applied as above for claims 1-3 and 5.

The difference between the reference and the claims is that the reference does not teach that the titanium zeolite is titanium beta. However, the reference discloses that the zeolite substrate is not limited and that a zeolite known to be suitable for olefin epoxidation may be used (refer to column 8, lines 40-50 of '661).

Grey et al. (US 6,194,591) discloses an olefin epoxidation process and teaches that a titanium zeolite such as TS-1 or titanium beta may be used (column 2, lines 25-40).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the composition of Zhou et al. to include the use of titanium beta in light of the teaching by Grey et al. that titanium beta is functionally equivalent to TS-1 in processes for the epoxidation of olefins. Because both TS-1 and titanium beta zeolite are art recognized functional equivalents and because the disclosure of Zhou et al. specifically suggests that additional, equivalent zeolites may be employed, one of ordinary skill would have a reasonable expectation of success from the combination.

#### ***Allowable Subject Matter***

7. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 1725

8. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach or suggest a polymer-encapsulated titanium zeolite wherein the polymer is polystyrene.

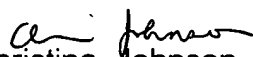
### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Johnson whose telephone number is (571) 272-1176. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Christina Johnson  
Patent Examiner  
Art Unit 1725

2/26/05

CAJ  
February 26, 2005